

At this Sign



FRIEND MEETS FRIEND

• Your Chevrolet motor car is a fine, intricate piece of mechanism that deserves only the best in care. In order to keep this mechanism in perfect operating condition, in order to keep it up to the standards that Chevrolet built into it, your Chevrolet dealer's service specialists stand ready to meet your service needs.

• Chevrolet-trained mechanics take your car in hand. They work with Chevrolet designed tools in order that factory accuracy is assured. Genuine Chevrolet parts are used to insure a continuation of factory standards of precision and materials. In short, your Chevrolet dealer's whole operation is based on the idea that only Chevrolet standards of service can give you Chevrolet standards of satisfaction.

• Decide now to give your Chevrolet the benefit of skilled service. Your Chevrolet dealer stands ready to perform every service job, big or little, at the lowest price consistent with reliable work. Bring your car to the place it will be well-treated—the place where friend meets friend!

SERVICE

You'll say

**"FIRST BECAUSE
IT'S FINEST!"**




Owners' **MANUAL** **1941** **PASSENGER CARS**

AGAIN
CHEVROLET'S the
CLASSIC CAR READER


OWNER'S MANUAL

1941 PASSENGER CARS

SECOND EDITION



To anyone desirous of having more mechanical information covering the design and construction of the 1941 passenger car, we will send a copy of the Chevrolet Shop Manual upon receipt of a remittance of 25 cents in coin.



CHEVROLET MOTOR DIVISION

GENERAL MOTORS SALES CORPORATION

DETROIT, MICHIGAN

Understanding— **THE DOOR TO FRIENDSHIP**

YOU have purchased a new Chevrolet car, and that purchase means a great deal to you, to your Chevrolet dealer, and to Chevrolet.

To you, it means possession of a fine motor car. To your Chevrolet dealer, it means an opportunity—and an obligation—to help you realize true satisfaction with your investment. And to Chevrolet, it means a large and willing interest in maintaining your continued satisfaction, for the entire Chevrolet organization desires not merely to make sales, but also to make friends.

Our interest in you, as a Chevrolet owner, and in your car, as a Chevrolet product, will continue during all the months and years that you drive your Chevrolet. We want to make Chevrolet ownership the most pleasant motor car experience you have ever enjoyed.

We ask you to read these pages carefully. They are the key to a better and mutual understanding, and will open the door of friendship between you, your Chevrolet dealer, and Chevrolet.

GENERAL INFORMATION

CHEVROLET STANDARD WARRANTY

It is expressly agreed that there are no warranties, expressed or implied, made by the Dealer or the Manufacturer on Chevrolet motor vehicles, chassis or parts furnished hereunder except as follows:

"The Manufacturer warrants each new motor vehicle (including original equipment placed thereon by the Manufacturer except tires), chassis or part manufactured by it to be free from defects in material or workmanship under normal use and service, its obligation under this warranty being limited to making good at its factory any part or parts thereof which shall, within ninety (90) days after delivery of such vehicle to the original purchaser or before such vehicle has been driven 4,000 miles, whichever event shall first occur, be returned to it with transportation charges prepaid and which its examination shall disclose to its satisfaction to have been thus defective. This warranty being expressly in lieu of all other warranties, expressed or implied, and all other obligations or liabilities on its part, and it neither assumes nor authorizes any other person to assume for it any other liability in connection with the sale of its vehicles. This warranty shall not apply to any vehicle which shall have been altered by anyone other than the Manufacturer, or repaired outside of an authorized Chevrolet Service Station in any way so as, in the judgment of the Manufacturer, to affect its stability or reliability, nor which has been subject to misuse, negligence or accident."

The Dealer agrees to install any part or parts furnished under the Manufacturer's warranty on the motor vehicle without charge to the owner of such motor vehicle.

This warranty does not apply to second-hand cars or cars not mentioned above.

POLICY

The Dealer also agrees to promptly perform and fulfill all terms and conditions of the Owner Service Policy.

REPAIR PARTS

Genuine Chevrolet parts manufactured to the same rigid specifications as the parts used in the original assembly of the car, are carried in stock by Authorized Chevrolet Service Stations.

Use only Genuine Chevrolet parts for replacement purposes, because they are better and cheaper. They are sold at uniform prices throughout the United States. Printed price lists published by the Chevrolet Motor Division are open to the inspection of owners at any Authorized Chevrolet Dealer's establishment.

SERVICE CHARGES

Charges prevailing at Authorized Chevrolet Service Stations are based on Flat Rate schedules furnished by the Chevrolet Motor Division. These Flat Rates are based on the use of methods and tools approved by the Chevrolet Motor Division, assuring the highest quality of work at the lowest possible price consistent with this quality.

Protect your investment by having your replacement repair and maintenance work done by an Authorized Chevrolet Service Station, which has all the necessary tools and the factory-trained men.

GENUINE CHEVROLET ACCESSORIES

The materials used in the manufacture of these accessories are of the highest and finest quality.

These accessories will appeal to every discriminating Chevrolet buyer. They offer him the opportunity to show his individuality in the selection of added touches of refinement and luxury for his car.

They are carried in stock by all Chevrolet Dealers.

BREAKING-IN PERIOD

Your Chevrolet car has been designed to furnish you many thousands of miles of motoring pleasure.

In order to maintain its high standard of performance and efficiency, special care should be given for the first two thousand miles as to the speed at which the car is driven and also to lubrication.

To properly break in the moving parts of the car, do not drive faster than:

40 Miles per hour for the first 100 Miles

50 Miles per hour for the next 200 Miles

60 Miles per hour for the next 200 Miles

Continuous high speed driving should not be attempted until the car has been driven 2000 miles.

See that your car is lubricated at regular intervals in accordance with the recommendations under "General Lubrication."

WAYS TO SAVE GAS AND OIL

How many miles do you get to the gallon? Unless you are the exception, you can get still greater mileage. And without cost! Just eliminate a few of the faults which most of us have and which tend to waste gasoline and oil. Some of the most common ones are listed here. Study them! Correct them and you'll save on fuel bills.

Quick Get-Aways are thrills that cost money. Tramping suddenly on the accelerator, or pumping it, feeds your motor more gasoline than it can use. Quick get-aways, too, waste gasoline by carrying you too far in second gear. Get away easily and smoothly to save gasoline. Slip into high gear at 20 to 25 miles per hour.

Sudden Stops are sometimes necessary, but always use extra gasoline. Stopping gradually, with the engine braking, saves gas money—and brake lining, too.

High Speeds are more than dangerous. At 70 miles per hour your motor uses almost twice as much gasoline, to go one mile, as it does at 20 miles per hour. Economical cruising speeds are 30 to 45 M.P.H.

Soft Tires are hard on your gasoline bill. They mean more road friction. This gives your motor unnecessary work to do and makes it use extra gas. Keep the extra money in your pocket by keeping your tires inflated to the recommended pressures.

Parking in the Sun wastes gasoline. Park your car in the shade, if you can, so that the hot sun will not evaporate gas from your tank.

An Idling Motor is a useless expense. Turn it off while you are waiting at the curb for a friend, or at a train crossing.

An Inefficient Carburetor is an efficient gasoline waster. Have yours checked at least twice a year (for summer and winter driving) to be sure it is properly adjusted, that the octane selector is properly set, and that the sediment bulb is clean.

Cheap Lubrication is a waste of money. Use oil of good quality and of the grade specified by the manufacturer. Have your car well greased every thousand miles.

One Faulty or Dirty Spark Plug may waste much of your gasoline.

An Over-Full Crankcase wastes oil and does not give you better lubrication, despite theories you may have heard. Keep your oil level within the limits marked on the "bayonet" gauge in the crankcase.

To Obtain Maximum Efficiency and greatest gas mileage, have a complete motor tune-up performed every 5,000 miles or at least twice a year.

CONTROLS AND INSTRUMENTS

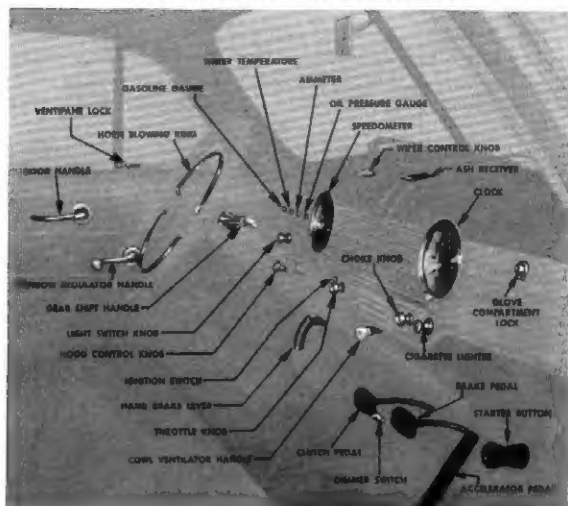


Fig. 1—Controls and Instruments (Special Deluxe)

The driver of a car should familiarize himself with the various controls provided for its proper handling. This does not apply to the beginner alone, as although there are many points of similarity among all cars, there are also important differences. It is not wise, regardless of previous experience, to drive a new or different make of car before fully understanding what each control is for and how to use it.

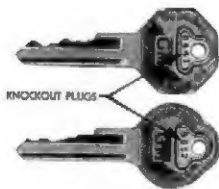


Fig. 2—Keys

KEYS AND LOCKS

The locks for both right and left-hand front doors and the ignition lock have the same keys. The rear compartment and glove compartment locks have the same keys.

The lock number is stamped on the knock-out plug in the center of the key. To protect you in case your keys

are lost, you should record the lock number and then push out the plug and destroy it.

If a new key is needed, and you do not know the lock number—you may obtain it by ordering through the Theft Bureau of the Chevrolet Motor Division, General Motors Sales Corporation, Detroit, Michigan, advising them of the car serial and engine numbers.

To lock the doors from the inside, push down the locking knob located on the bottom of the window opening of each door.

To lock the car from the outside, either of two ways may be used:

1. With the door open, push down the inside locking knob and hold the outside handle down (vertical) while closing the door.

2. With the door closed, insert key in the lock of the front door and give the key a quarter turn.

To unlock the car, insert door key and give key a quarter turn.



Fig. 3—Outside Lock (Left Door)



Fig. 4—Ignition Lock

Ignition Lock The ignition lock is illuminated and theft resisting.

The keys supplied for the door lock are also used for unlocking and locking the ignition switch.

Glove Compartment Lock The glove compartment door is equip-

ped with a lock having a different key number than the ignition and door locks.

To open the door, when the lock is in the unlocked position, press inward on the face of the lock cylinder to release the lock catch from the striker plate.

All Special DeLuxe Models have a light in the glove compartment which is lighted automatically when the compartment door is opened.

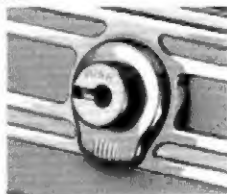


Fig. 5—Glove Compartment Lock

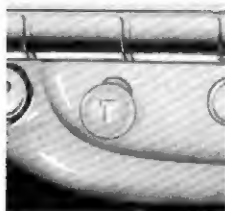


Fig. 6—Throttle Knob

THROTTLE CONTROL

The opening and closing of the throttle valve in the carburetor is controlled from the driving compartment by the accelerator pedal, but it is sometimes advisable to use the throttle knob on the instrument panel. Pulling out the throttle knob will open the throttle.

CHOKE CONTROL

When starting a cold engine, it is necessary to provide a fuel mixture richer in gasoline than is ordinarily required.

The correct use of the choke is extremely important; if improperly handled it may seriously affect the life of the engine by the thinning effect on the lubricating oil of unburned gasoline leaking by the pistons.

The choke should not be used if the engine retains any heat from previous running, without first attempting to start the engine with its normal fuel mixture.

If the choke has been used excessively, causing failure to start, open the throttle to admit sufficient air to overcome the overloaded condition of the engine.



Fig. 7—Choke Knob

SPARK CONTROL

The spark timing of the Chevrolet engine is controlled by two engineering features:



Fig. 8—Octane Selector

1—Manually The Octane Selector
—For maximum economy and performance the octane selector must be advanced as far as possible without causing the engine to knock at wide open throttle. When the lower octane (lower grade) fuels are used, the selector should be retarded. Higher octane fuels permit more advance, resulting in a still greater economy and better performance.

2—Automatic By the speed of the engine, through the governor weights in the distributor and by vacuum control.

STARTING BUTTON

Pressing down on the starting button first engages the starter pinion with the teeth of the flywheel and, at the end of the stroke, closes the switch of the electric starting motor, which cranks the engine.

As the starting button is depressed, the carburetor throttle valve is automatically opened approximately one-third, so that when the engine starts, it will be operating at an engine speed of approximately 30 miles per hour, but will slow down to idle speed unless the accelerator is depressed.



Fig. 9—Starting Button

CLUTCH PEDAL

By means of this control the power required in putting the car in motion may be gradually and smoothly applied to the drive system.

When the clutch pedal is in its normal position, the clutch is engaged and the engine is directly connected to the transmission. By depressing the pedal, the clutch is released and the engine disconnected from the transmission gears, permitting the shifting of the transmission gears.

To assure maximum clutch efficiency and long life of the clutch parts, there should be $\frac{3}{4}$ to 1 inch of free pedal travel before the clutch starts to dis-



Fig. 10—Clutch and Brake Pedals

BRAKE PEDAL

Depressing this pedal applies the four-wheel service brakes.

VACUUM POWER SHIFT

The vacuum power shift utilizes both manual control and vacuum power to accomplish the change in gears.

Movement of the gear shift lever, mounted on the steering column below the steering wheel, requires only a very small percentage of the force necessary to shift gears with the conventional gear shift lever. This makes it possible for the driver to shift the transmission gears safely and conveniently without removing the hand from the steering wheel.



Fig. 11—Gear Shifting

The gear shift lever may be placed in any one of five positions—neutral, reverse, first, second and third. The travel of the lever is the same as that of the conventional floorboard lever, except that it moves in a vertical plane instead of a horizontal plane. The operation of the lever in engaging the gears consecutively is as follows:

1. See that gear shift lever is in neutral or horizontal position (lever may be moved up and down).
2. First speed—with clutch pedal depressed, raise lever toward steering wheel and push toward the rear of the car until it is fully engaged in first speed location; then gradually release clutch pedal.
3. Second speed—With clutch pedal depressed, push lever toward the front of car. Lever will cross through neutral position moving away from steering wheel and engage second speed position. Release clutch pedal.
4. Third speed—With clutch pedal depressed, pull lever toward the rear of the car until lever has reached the end of its travel into third speed position.
5. Reverse—With car at a standstill, depress clutch pedal, raise lever, and push forward.

HAND BRAKE LEVER

The hand brake lever is interconnected with the rear service brakes and is used for holding the car when parked or when about to get under way up a steep grade.



Fig. 12—Hand Brake Lever

HOOD CONTROL

The hood is of the alligator jaw type, opening at the front, and has a concealed lock under the fore part of the hood for protection of the engine compartment contents.

The hood lock is operated by a control located under the left side of the instrument panel. The hood lock is released by pulling out the control knob. This raises the hood one inch, sufficient opening to enable you to release the safety catch located under the forepart of the hood by pulling catch forward.



Fig. 13—Hood Lock Knob

LIGHTING CONTROL

The headlamps, parking lamps, and tail lamps are controlled by a single switch operated by a knob on the left side of the instrument panel, below the water temperature indicator. When it is pulled out half way, the parking lights, tail lamps, dash lamps, ignition switch lamp, and license lamp are lighted. When pulled out all the way, the headlamps, tail lamps, dash lamps, license lamp, and ignition switch lamp are lighted.

By turning the light control knob, any degree of instrument cluster and ignition lock lighting may be obtained, or the lights may even be turned off.

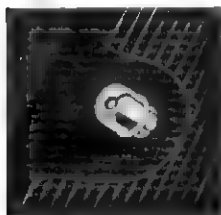


Fig. 14—Dimmer Switch

The direction of the headlamp beam may be changed by pressure on the foot switch located at the left side of the toe board. For city driving the hand switch knob should be all the way out and the foot switch should be in that position which throws the light nearest the car. To throw the light farther ahead for driving on the open road, depress the foot switch again.

A headlamp beam indicator is provided in the speedometer, and the small opening above 50-mile mark is illuminated when the country beams are on.

The fuse is of 30 ampere capacity. It is located on the back of the lighting switch, easily reached in case it requires replacement.

The dome light switch is on the right-hand door lock pillar of all models and is the sliding button type and indicates the on and off position. All Special DeLuxe Models have an automatic dome light switch on the left-hand front door lock pillar.

On Special DeLuxe Models a light in the glove compartment provides illumination when the door is open.

GASOLINE GAUGE

An electrically operated gasoline gauge indicates the fuel supply when the ignition switch is turned on.

WATER TEMPERATURE

The water temperature indicator functions as a thermometer, indicating the temperature of the water in the cylinder head.

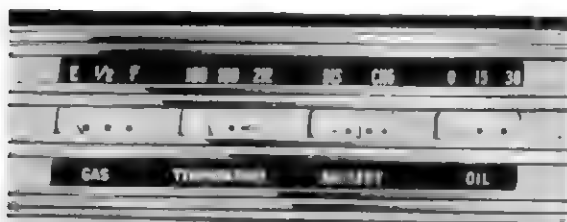


Fig. 15—Instrument Group

AMMETER

This instrument registers the flow of current to and from the battery, except that taken by the starting motor. The ammeter reading is an indication of whether the battery is receiving charging current from the generator, but does not indicate the condition of the battery.

The charging rate of the generator is regulated by the voltage and current regulator. The voltage regulator protects the battery from overcharging while the current regulator limits the output

of the generator. The functioning of these units often causes slight fluctuations in the ammeter hand. This fluctuation is one of the indications that the voltage and current regulator are operating satisfactorily and should cause no concern on the part of the car owner.

OIL PRESSURE GAUGE

This gauge on the instrument panel is an indicator only, and merely shows whether the pump is working. The pressure shown on the gauge does not necessarily indicate the condition or quantity of oil in the crankcase.

If the gauge does not register pressure when the engine is running, stop the engine immediately and determine the cause.

SPEEDOMETER

The speedometer is of the circular type and is located to the right of the instrument cluster.

In a small opening at the 50-mile mark, a red light shows whenever the headlamps are lighted on the upper beam designed for driving outside of cities and towns.

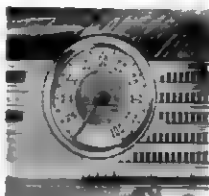


Fig. 16—Speedometer

CLOCK

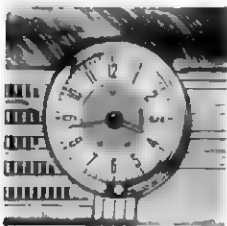


Fig. 17—Clock (Special DeLuxe)

Special DeLuxe Models are equipped with an illuminated stem wind clock located to the left of the glove compartment door. The clock is set by turning a small knob on its frame below the dial.

When the headlights or parking lights are on, a light within its case illuminates the dial.

WINDSHIELD WIPER CONTROL

The windshield wiper control lever is located to the left of the lower end of the center dividing strip of the windshield. Moving it to the right starts the wiper.

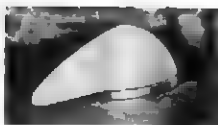


Fig. 18—Wiper Control Lever

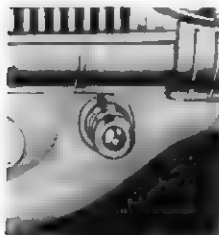


Fig. 19—Cigarette Lighter
(Special DeLuxe)

CIGARETTE LIGHTER

Special DeLuxe Models are also equipped with a press-in-to-light type cigarette lighter. Push the lighter all the way in and let go. The lighter will eject automatically and be ready for use in eight to ten seconds.

COWL VENTILATOR

The cowl ventilator is opened and closed by means of the handle located below the center of the instrument panel. Three open positions are provided for the regulation of air admitted.

HORN BUTTON

Special DeLuxe Models are equipped with a horn blowing ring, permitting sounding of the horn by a finger touch without removing the hand from the wheel.

The horn button on Master DeLuxe Models is located in the center of the steering wheel.



Fig. 20—Horn Blowing Ring

SUN VISOR

The Sun Visors are designed so that they may be moved in and out as well as revolve to the side to better shut off the glare from the sun.

Special DeLuxe Models are equipped with right and left-hand sun visors, whereas the Master DeLuxe

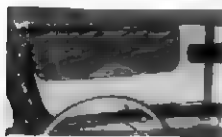


Fig. 21—Sun Visor (Left-Hand
Shown)

Models are equipped at the factory with one sun visor on the driver's side. The illustration shows the sun visor in its normal position nearest the mounting bracket, and in phantom in its position nearest the center of the windshield.

ASH RECEIVERS

All Special DeLuxe Models have a convenient ash receiver located on the upper face of the instrument panel. The cover is of the push-pull type.

The Special DeLuxe Sport Sedan has an ash receiver located in the center of the back of the front seat. This ash receiver has a hinged cover.

The Special DeLuxe Town Sedan and 5-Passenger Coupe Models have an ash receiver located in the front face of the rear seat arm rests. These ash receivers have a hinged cover.



Fig. 23—Front Seat Adjuster

All ash receivers have a cigarette snuffer. To empty the ash container, press down on the cigarette snuffer and lift out the container.

FRONT SEAT ADJUSTER

The finger lever to release the front seat adjusting mechanism is at the left-hand corner of the front seat. Upon raising the lever, the seat can be easily moved forward or backward until the proper location is reached to afford maximum comfort for the driver.

FRONT VENTIPANE CONTROL

The front door ventipanes, or ventilators, are operated with a crank handle. They are locked by means of a sliding bolt on the lower frame. To lock the ventipane in the closed position, simply slide the knob toward the rear of the door. To open the lock, the knob must be pulled out before the bolt can be disengaged.

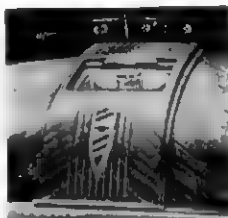


Fig. 22—Ash Receiver
(Special DeLuxe)

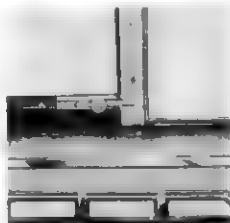


Fig. 24—Ventipane Lock

QUARTER WINDOW REGULATOR

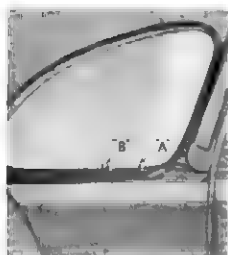


Fig. 25—Quarter Window Regulator (Special DeLuxe)

Special DeLuxe Model Sport Sedans and 5-Passenger Coupes are equipped with sliding rear quarter windows. The regulating mechanism is controlled by the handle rising through the window lower moulding. When the handle is in the forward position "A," the window is closed. By pulling the handle toward the rear position "B," the window will be opened as far as possible, slightly more than 4 inches. The window is automatically locked when closed, or in any one of several open positions.

Special DeLuxe and Master DeLuxe Model Town Sedans are equipped with a rear quarter window which raises and lowers in the conventional manner.

TIRES

WARRANTY

The tires that come with your car are guaranteed by the tire manufacturer, or his agent, according to the standard Tire Manufacturer's Warranty.

VALVE CAPS

It is generally considered that valve caps merely keep out dust and dirt. This is erroneous due to their present construction. When properly tightened down, they act as a positive seal to the air compressed into the inner tubes.

BALANCED INFLATION

Balanced inflation, as related to tire pressures, may be expressed as follows:

Tire pressure may differ between the front and rear tires but never between the right and left tires on the same axle. A 5-pound under-inflation in one front tire not only makes steering difficult, but will cause the car to pull in that direction on application of the brakes. A 5-pound under-inflation on one rear tire will not

only affect the braking efficiency, but can cause a car to go into a skid and a possible accident.

Unbalanced tire pressures can deprive you of such benefits as: Ease of Steering, Riding Comfort, Safety in Driving—as well as Minimum Fuel Consumption and Maximum Tire Life. The correct tire pressure for your Chevrolet car is 26 pounds in the front and 28 pounds in the rear.

TIRE WEAR

There are many causes of excessive or uneven tire wear. Improper inflation is the most common of tire abuses. Air pressure in the tires should be checked weekly, regardless of how they may look. Under-inflation causes excessive wear on the sides of the tire tread; and over-inflation causes excessive wear in the center of the tread.

Incorrect front wheel alignment, or wheels which are out of balance, will cause uneven spots on the tire tread. If this condition appears, we recommend that you have your car checked by your Chevrolet dealer, who has the necessary special tools and equipment to perform this inspection operation.

Scraping tires against the curb will break the rubber and weaken the sidewalls of the tire casing.

Severe application of the brakes, causing the wheels to slide, will wear flat spots on the tread.

Spinning the rear wheels when putting the car in motion causes excessive tire wear.

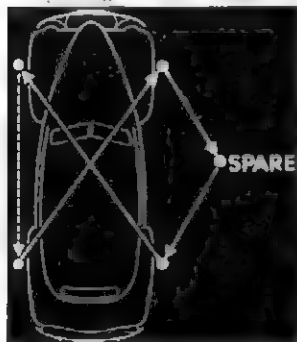


Fig. 26—Interchanging Tires

Extra Tire Life Additional tire life may be obtained by interchanging the tires on your car at regular intervals, between 2000 and 5000 miles, depending upon the severity of the rate of tread-wear in your locality.

In order to utilize your spare tire and keep it from disintegrating due to lack of use, each time the tires are interchanged:

the right front tire goes into the spare compartment;
the spare tire goes on the right rear;
the right rear goes on the left front;
the left front goes on the left rear;
the left rear goes on the right front.

The right front has been chosen to be put into the spare each time as the tire on this wheel position is called upon to stand more scuffing than any other tire.

BRAKES

The service brakes are applied by means of hydraulic pressure from the main cylinder to each wheel cylinder. The emergency brake or hand brake is mechanically operated through a series of linkage and cables that actuate the rear brake shoes.

Depressing the brake foot pedal applies the four wheel service brakes. The hand brake lever provides a means of holding the car when parked or getting under way on a steep up-grade.

Do not under any circumstances use other than "GM" hydraulic brake fluid, as it is the highest quality of brake fluid obtainable and its use will assure the long efficient life of all brake parts. The fluid level in the main cylinder should be checked periodically by your Chevrolet dealer.

These brakes have been designed and developed to give consistent and efficient service with long life under all conditions, and in order that they may do so, it is advisable that you follow these suggestions:

1. Avoid sudden stopping, as this puts unnecessary strain on the car.

2. Delay in adjusting brakes creates unnecessary repair bills.

3. When slowing down do not de-clutch your engine until the last moment, as the compression of the engine, on closed throttle, materially helps to slow down and stabilize the car when stopping.

4. Re-line brakes only with genuine "GM" linings, as this lining has been especially developed for this particular brake. Your Chevrolet dealer, for a reasonable price, will exchange the old brake shoes for new shoes with new linings precision ground to fit the brake drum.

5. Be sure that only genuine "GM" hydraulic brake fluid is used in the system, as possible damage to the hydraulic brake parts may result through the use of inferior brake fluids.

For all normal adjustments, it is necessary only to compensate for brake-lining wear. Your Chevrolet dealer has competent trained mechanics and the necessary equipment to render this service at a moderate cost. The necessity for brake adjustment is indicated when the brake pedal goes practically to the floor pan when the brakes are applied.

CARBURETOR

The carburetors are carefully tested and adjusted to the engine before leaving the factory. Too often adjustments are made to the carburetor when, in reality, something else is causing uneven running or the engine has not thoroughly warmed up.

There are two adjustments on the carburetor, one for idling mixture and the other for idling speed. These adjustments should be made together.

To adjust the idling mixture, proceed as follows: Open the idle adjusting screw, "A," Fig. 27, from 1 to 2 turns. Let engine idle. Try turning screw both ways from this position until the best results are obtained.

To adjust for idling speed, proceed as follows: With the hand throttle on the instru-

ment panel closed, set the throttle lever stop screw, "B," Fig. 27, so that the engine runs at approximately 400 revolutions per minute. If the engine runs too fast, back the screw out; if too slow, turn it in until the proper speed is obtained.

AIR CLEANER AND INTAKE SILENCER

The air taken into the carburetor to mix with the fuel is thoroughly mixed in passing through the combined air cleaner

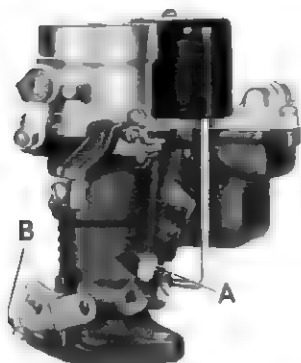


Fig. 27—Carburetor Adjustment

and flame arrester mounted on the top of the carburetor at the air intake (Fig. 28).

Cleaning of the air is accomplished by a pad of copper gauze, through which the incoming air passes, depositing the particles of dust, dirt and grit on the oil-covered edges. This metallic gauze pad also quenches any flame that may be caused by backfire through the carburetor.

Under ordinary conditions, where the car is driven on pavement or surfaced roads, the air cleaner should be removed every 2,000 miles and the dirt that has collected on the copper mesh cleaned out. This is done by removing the top cover and felt pad from the air cleaner, and slushing the copper mesh in gasoline and then letting it drain and dry. After it is thoroughly cleaned and dry, the copper mesh should be dipped in engine oil and again drained, after which it is assembled to the air cleaner.

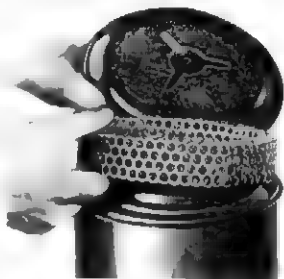


Fig. 28—Air Cleaner

Under extreme conditions, when the car is operating on gravel or dusty roads all the time, this cleaning operation must be done at more frequent intervals.

For service and special equipment, a heavy duty air cleaner

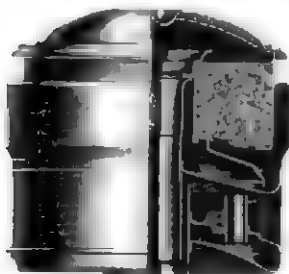


Fig. 29—Heavy Duty Air Cleaner

is available, designed for direct attachment to downdraft carburetors. This cleaner is suitable for operating in extremely dusty conditions, and is quickly interchanged with the air cleaner installed as standard equipment, and will not affect the power and economy in any way. Oil of not less than S.A.E. 50 viscosity **MUST** be used in summer and lighter grades in winter and the level must be maintained. One pint of this

oil will fill the cleaner to its proper level.

Servicing of this cleaner, an important operation, must be performed as follows:

Remove the air cleaner from the carburetor. Remove the wing nut from the top and remove the cover. Remove the filter element assembly. *Caution: Do not pry this part loose if it sticks. It must be removed by hand because you may damage the filter element flange, which must lie flat against the body to insure a tight seat at this point to prevent air leaks when the cover is assembled.*

Empty the oil out of the cleaner and clean out all accumulated dirt. Wash body with clean gasoline and wipe dry. Wash filter element by slushing up and down in clean gasoline. Dry thoroughly, either with an air hose or by letting it stand until dry. Fill the body of the cleaner with one pint of oil of not less than S.A.E. 50 viscosity in summer and lighter grades in winter. It is not necessary to re-oil the filter element as this is done automatically when the car is driven.

Reassemble the filter element to the body of the cleaner, being sure that the flange is set flat against the top flange of the body. Reassemble the cover, making sure that the gasket is clean and in good condition over its entire surface, so that a tight seat is obtained. Put on wing nut.

Reassemble the cleaner to the carburetor. The cleaner must be put on tight and set down so that the felt pad rests against the carburetor to assure a good seat. Tighten clamp.

The periods at which this procedure must be followed will vary greatly according to the particular conditions under which the car is operating. Experience will tell what this period may be.

COOLING SYSTEM

The function of the cooling system is to keep the engine at its most efficient operating temperature under all driving conditions.

Chevrolet's cooling system is unusually effective, because Chevrolet's engine design provides large water passages around the cylinder walls, spark plugs and exhaust valves. Because the flow of water is not restricted at any point, the engine does not develop any "hot spots." The thermostat, located in the water outlet housing, should not be removed during the summer.

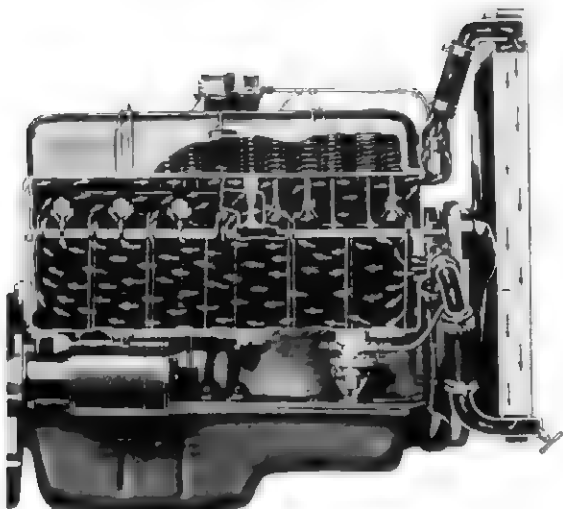


Fig. 30—Water Flow Through Engine

The water pump circulates the water in the cooling system. It is a self-contained unit, of the self-adjusting, centrifugal type, with a capacity sufficient to take care of the cooling needs of the engine. This water pump does not require any lubrication.

Intelligent care and the proper servicing of the cooling system are necessary to maintain its maximum efficiency.

The entire circulating system should be thoroughly flushed out at regular intervals. This can be accomplished with any of the several types of radiator flushers available. It will be found that the systems employing the reverse method of flushing will prove most efficient.

When draining the cooling system, open the drain cock at the bottom of the radiator and also the drain cock at the lower left side of the cylinder block.

ANTI-FREEZING SOLUTIONS

In selecting an anti-freezing solution for winter operation, the local conditions and the type of service should be considered. The following information is given to assist the car owner in selecting the anti-freezing solution best suited to meet his own individual driving conditions.

The available commercial materials which may be used for preparing anti-freezing solutions for automobile radiators are denatured alcohol, methanol, propanol, ethylene glycol, and distilled glycerine.

Kerosene or other oils, or solutions containing calcium chloride, magnesium chloride, sodium silicate or other inorganic salts, honey, glucose or sugar are not satisfactory for use in the cooling system.

Alcohol Denatured alcohol and methanol are used extensively for anti-freezing solutions. The various types of alcohol anti-freeze afford protection against freezing and have the advantage of wide distribution and low first cost.

There are, however, two important disadvantages. Alcohol is lost, especially on warm days and on hard driving, and, unless the solution in the radiator is tested periodically and sufficient alcohol added to replace the loss, the engine or radiator, or both, are likely to be damaged by subsequent freezing. The car finish is softened and damaged by contact with alcohol solutions or vapors. Alcohol accidentally spilled on the finish should be flushed off immediately with a large quantity of cold water without wiping or rubbing.

The use of an overflow tank, connected to the overflow pipe of the radiator, serves to condense and trap vapor or liquid that would otherwise be lost. On cooling, the condensate or liquid is returned to the radiator. The surge or overflow tank is particularly useful when alcohol anti-freeze is used, and especially in territories where the atmospheric temperature fluctuates over a wide range during the winter months.

Directions for preparing Anti-Freezing Solutions from Denatured Alcohol 94% (188° proof) and from "GM Anti-Freeze" (Methanol).

Freezing Point	Proportion of Denatured Alcohol and Water to make one gallon of Anti-Freezing Solution	Proportion of "GM Anti-Freeze" and Water to make one gallon of Anti-Freezing Solution
+10° F.	2½ pints denatured alcohol, 5½ pints water	2 pints "GM Anti-Freeze," 6 pints water
0° F.	3 pints denatured alcohol, 5 pints water	2½ pints "GM Anti-Freeze," 5½ pints water
-10° F.	3½ pints denatured alcohol, 4½ pints water	3 pints "GM Anti-Freeze," 5 pints water
-20° F.	4 pints denatured alcohol, 4 pints water	3½ pints "GM Anti-Freeze," 4½ pints water
-30° F.	5 pints denatured alcohol, 3 pints water	4 pints "GM Anti-Freeze," 4 pints water

Other alcohol anti-freezes should be diluted in accord with the instructions issued by the anti-freeze manufacturer.

Ethylene Glycol Ethylene glycol is, in first cost, more expensive than alcohol. Ethylene glycol anti-freezing solutions have the distinct advantage of possessing a somewhat higher boiling point than alcohol anti-freezing solutions and, consequently, may be operated at a higher temperature, resulting in a more effective performance of the car heater.

Ethylene glycol has the further advantage that in a tight system only water is required to replace evaporation losses. However, any solution lost mechanically through leakage or foaming must be replaced by additional new solution. Under ordinary conditions ethylene glycol solutions are not injurious to the car finish.

"GM Ethylene Glycol" is especially treated and compounded for use in the cooling system. Other ethylene glycol preparations are available, but only those containing suitable corrosion inhibitors and compounded for use in automobile cooling systems should be used.

Directions for Preparing Ethylene Glycol Anti-Freezing Solutions from "GM Ethylene Glycol."

Freezing Point	Proportion of "GM Ethylene Glycol" to make one gallon of Anti-Freezing Solution
+10° F.	2 pints "GM Ethylene Glycol," 6 pints water
0° F.	2½ pints "GM Ethylene Glycol," 5½ pints water
-10° F.	3 pints "GM Ethylene Glycol," 5 pints water
20° F.	3½ pints "GM Ethylene Glycol," 4½ pints water
-30° F.	4 pints "GM Ethylene Glycol," 4 pints water

Other ethylene glycol anti freezes should be diluted in accord with the instructions issued by the anti-freeze manufacturer.

Glycerine Radiator glycerine, which is chemically treated, in accord with the formula approved by the Glycerine Producers' Association, to avoid corrosion, is satisfactory for use in the cooling system.

Servicing the Cooling System Before installing anti-freezing solution, the cooling system should be inspected and serviced for winter operation. The system should be thoroughly cleaned and all loose scale and iron rust removed.

Cylinder head gaskets should be tightened, or replaced if necessary, to avoid the possibility of anti-freezing solutions leaking into the engine or exhaust gas blowing into the cooling system. Anti-freeze, or water, mixed with engine oil may form sludge, which will interfere with lubrication and, in some cases, may form varnish-like deposits which will cause gumming and sticking of the moving parts.

It may be advisable to install new radiator and heater hose, especially when ethylene glycol or glycerine anti-freezing solutions are used. Ethylene glycol and glycerine have a tendency to shrink rubber that previously has been swollen by the absorption of water, and leaks may develop.

The water pump seal must be leaktight, not only to avoid loss of liquid, but to prevent air from being drawn into the cooling system. Aeration of the cooling liquid causes foaming and promotes oxidation, which may result in serious corrosion.

After the anti-freezing solution has been installed, the entire system, including the hose connections, cylinder head gasket and pump, should be inspected regularly to insure that no leaks have developed.

The use of additional rust preventives, or inhibitors, is not recommended with "GM Anti-Freeze," "GM Ethylene Glycol," or with other anti-freeze preparations that have been chemically treated or compounded for use in automotive cooling systems.

Loss of Anti-Freezing Solutions Anti-freeze, or water, or both may be lost from the cooling system through leaks, evaporation, boiling, foaming, or expansion. Loss through excessive evaporation or boiling may be caused by impaired circulation or through the use of a high temperature thermostat.

Loss by expansion is a result of overfilling. In the average cooling system, the anti-freezing solution expands approximately 2 pints on heating from 30° F. to 160° F., and a corresponding space should be left when adding liquid to the radiator.

A hydrometer test will indicate whether anti-freeze, or water, or both should be added to bring the solution to the proper level and to maintain the desired freezing point.

Testing Some devices, used for testing anti-freezing solutions, will indicate the correct freezing point only when the test is made at a specific temperature. Other testers, provided with thermometers and tables, indicate the freezing points corresponding to readings made at various temperatures. Disregarding the temperature of the solution, when tested, may cause an error as large as 30° F.

Some testing devices are made to test only one kind of anti-freezing solution. Others have several scales and may be used for the corresponding kinds of anti-freeze.

The freezing point of a solution containing both alcohol and ethylene glycol cannot be determined accurately by means of a hydrometer.

ELECTRICAL SYSTEM

The electrical system is called the double-unit system with ground return, and consists of the following units: Generator, voltage and current regulator, starting motor, distributor, ignition coil, wiring harness, storage battery, ammeter, gasoline gauge, two horns, ignition lock, lighting, and foot control switch.

SPARK PLUGS

Your car is equipped with "AC" type 104 Spark Plugs having 10 millimeter threads. These plugs warm up faster after starting the engine but operate cooler at full throttle than the previous types of plugs which have been used. This new plug reduces the possibility of the formation of oxide deposits when gasolines are used to which lead has been added.

Because of the smaller size, care must be used when removing and installing plugs to prevent thread stripping or insulator breakage. Thumb and finger pressure on the handle of the spark plug wrench is sufficient for proper tightening.

In order to secure maximum life and performance in these plugs, it is recommended that they be thoroughly cleaned every 3000 to 4000 miles in order to remove oxide deposits which form on the porcelain.

The correct gap setting is .040".

BATTERY

The storage battery is located on the right side of the engine compartment just ahead of the dash.

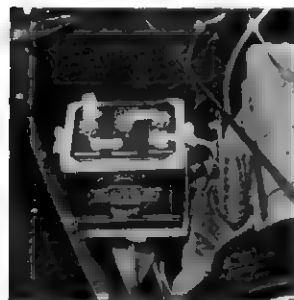


Fig. 31—Battery in Location

The battery is provided with non-overfill caps to permit the filling of the battery with water to a predetermined level. In warm weather it makes no difference when water is added but in freezing weather it should be added just before using the car. The reason is that water will remain on top of the solution until it is mixed with it, by action of the battery. If not mixed with the solution, it would freeze almost as quickly as outside of the battery.

Water will be required more frequently in summer than in winter. It is a good plan to add water at least once a week in summer and every two weeks in winter. When long daylight runs are made, water must be added still more frequently. Keep all battery terminals clean and tight.

A discharged battery will freeze at a little below the freezing point of water (32 degrees F.). A fully charged battery will not freeze, even at temperatures as low as 30° below zero; therefore, keep the battery fully charged. Your Chevrolet Dealer will gladly check the condition of the battery for you on a no-charge basis. Register your battery with him.

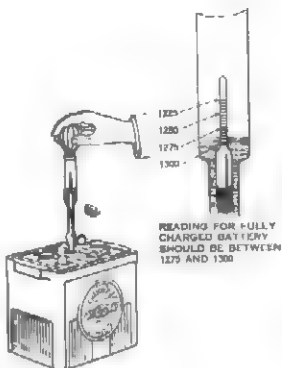


Fig 32—Hydrometer

"SEALED BEAM" HEADLAMPS

Chevrolet provides a new headlighting system known as "Sealed Beam" (Fig. 33) in which the light source, the reflector, the lens and the gasket are all assembled in one securely sealed unit. When the filament burns out or the lens breaks, the entire unit is replaced with a new one, thereby assuring maximum lighting efficiency throughout the entire life of the car.



Fig. 33—Sealed Beam Headlamp

This lighting system represents the coordinated effort of the automobile and headlamp manufacturers. It conforms to the standards of the Society of Automotive Engineers and has the endorsement and approval of the American Association of Motor Vehicle Administrators, Automobile Manufacturers' Association and organizations interested in National Safety.



Fig 34—Country (Upper) Beam

"Sealed Beam" headlamps provide two separate and distinct beams, giving considerably more light than has been produced in the past:

1. A country (upper) beam (Fig. 34) is designed to illuminate the road evenly for considerable distance ahead of the car. This beam is for use on the open highway when no other vehicles are approaching.
2. A traffic (lower) beam (Fig. 35) is also provided and is low enough on the left side to prevent glare in the eyes of the oncoming drivers. It is intended for use on heavily traveled



Fig 35—Traffic Beam

highways and should always be used when meeting other vehicles. This beam is designed so that it does not throw any dazzling light into the eyes of the approaching driver under any condition of car loading. At the same time the distribution of light is such that the right side of the road is illuminated as far ahead as is practicable without causing glare on curves.

Chevrolet's "Sealed Beam" headlamps have been designed to insure the motorist of maximum safety and comfort for night driving, but to obtain this safety for himself and for others the motorist must be willing and anxious to use his headlighting equipment in the manner intended. Good drivers are always courteous.

The operation of the headlights is a simple one, allowing the motorist to use either the country (upper) or the traffic (lower) beam as traffic and road conditions demand by the use of a conveniently located foot switch. By pulling the light button on the instrument board to the second or last position, either the country (upper) or traffic (lower) headlamp beams are obtained alternately by operating the foot switch (Fig. 36).

When the country (upper) beams are lighted, a red pilot bulb in the instrument cluster will be illuminated, making it convenient for the driver to determine when this beam is in use. *Never pass an approaching car with the red light burning. Always use the traffic (lower) beam when meeting.*

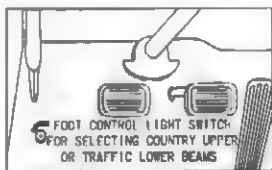


Fig. 36—Foot Control Switch

By pulling the light button to the first position, the parking lamps on the fenders, license plate lights and both tail lights are lighted. The parking lamps consume a very small amount of current, thus minimizing the current consumed while the car is parked.

Replacing Headlights Two types of "Sealed Beam" headlamp units are available. One of these types is made entirely of hard glass and the other is a composite unit consisting of a metal reflector and a glass lens. Both are completely

interchangeable from the standpoint of electrical connections, beam patterns and physical dimensions.



Fig. 37—Remove Headlamp Door Rim

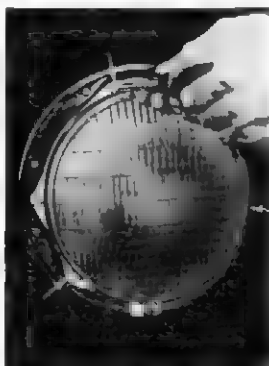


Fig. 38—Loosen Retaining Ring Screws

No dust or moisture can get inside the "Sealed Beam" headlamp unit because the reflector and lens are sealed together permanently. This feature eliminates cleaning except for wiping off the outside of the lens and provides proper focusing and maximum light efficiency during the life of the car. The reflector units in both the right- and left-hand headlamps are identical and are so designed that they cannot be installed improperly, nor can the electrical connections be attached in any but the right way. This feature makes replacement of a unit extremely simple, as follows:

1. Remove headlamp door rim. (See Fig. 37.)
2. Loosen but do not remove the three screws holding the retaining ring. (See Fig. 38) (Do not disturb the aiming screws at the top and on the left side of the unit.)
3. Remove retaining ring by rotating to the left, allowing the reflector unit to be removed. (See Fig. 39.)
4. Remove the reflector plug from the reflector unit. (See Fig. 40.)
5. Install a new unit by reversing above operations.



Fig. 39—Remove Retaining Ring



Fig. 40—Remove Reflector Plug

LAMP BULBS

Where Used	C. P.	Bulb No.
Headlamp	45-35 watts	Sealed Beam
Parking Lamp	3	63
Tail and Stop Lamp	21-3	1154
Tail and Stop Lamp (Pick-up Box)	3	63
Tail Lamp (Sedan Delivery)	3	63
Stop Lamp (Sedan Delivery)	15	87
License Plate Lamp	3	63
Ignition Lock Lamp	$\frac{1}{2}$	51
Headlamp Beam Indicator	$\frac{1}{2}$	51
Instrument Cluster	$1\frac{1}{2}$	55
Speedometer	$1\frac{1}{2}$	55
Clock	$1\frac{1}{2}$	55
Glove Compartment	$1\frac{1}{2}$	55
Dome Lamp	6	82

CARE OF THE FINISH

CHROME

The chrome-plated parts on your car are plated under rigid conditions of control and to definite thicknesses of plate, to provide the ultimate in protection of the parts against corrosion.

However, salt and calcium chloride are used to clean streets of snow and ice in winter, and are also applied to dirt and gravel roads to lay dust. These compounds, if splashed or thrown on the plated surfaces of your car and allowed to remain for any length of time, are destructive to this finish because they cause a chemical reaction which eats through the surface and opens it to rust. Sea-coast locations and the corrosive atmospheres of some localities also are hazardous to chrome plate.

If rust spots appear on the chrome-plated surfaces, their appearance can be improved by cleaning the affected spots with a scouring powder of a type which would be used for cleaning porcelain. After this has been done, a thin film of oil or wax should be applied.

PAINT, ENAMEL AND LACQUER

Your car is finished with the latest and best materials and with reasonable care the finish should last for the life of your car.

Strong Sunlight Strong sunlight is the most damaging element to these finishes. Continued exposure gradually causes the dulling of the surface. It is obvious that parking a car in the shade is a good thing to do, but since this is not always practical, the car should be polished occasionally with a good polish, which will be recommended on your request by your car dealer.

Dirt and Road Film Keeping a car clean is good from every standpoint. Frequent dusting and washing pay good dividends in the maintenance of car appearance and value. When washing a car, it is well to use a sponge and plenty of water, being careful not to scratch the finish with dirt or gravel which may be on the car. Dry to a high luster with a clean chamois.

Tar Tar is often used on roads and occasionally gets splashed on the car. When fresh, it can usually be removed with gasoline. If it is allowed to remain on the car for any time, it is well to use a commercial tar remover, which can be purchased from your dealer.

Bug Spots Bug spots on the finished parts of the car can be washed off very easily by using a solution made up with two quarts of water in which $\frac{1}{2}$ pound of baking soda (bicarbonate of soda) has been dissolved. Flush the washed parts with clean water.

CARE OF THE UPHOLSTERY

Too much emphasis cannot be placed upon the importance of keeping automobile upholstery clean and attractive at all times. It wears longer and affords greater comfort and enjoyment. It keeps hands and clothes from getting soiled and prevents the spread of infectious germs.

To keep automobile upholstery clean and attractive is relatively simple. Some fabrics, especially modern mohair velvets, are, of course, more easily cleaned than others.

Care should be taken in the use of cleaning solvents to minimize the amount of "finish" that may be removed from the materials and to lessen the possibility of leaving cleaning rings. If cleaning rings should form, the entire panel or seat should be gone over with the cleaning solvent, so that the appearance becomes uniform. It will also help if the cleaning solvents are first applied just outside the spots and then rubbed with a circular motion towards the center. This will drive the spots to a head, rather than spread them.

REMOVAL OF DUST

Dust and dirt particles that fall on the surface of automobile upholstery should be removed every few weeks—more often with constant, hard driving. This can be done readily with a whisk broom, carpet beater, or vacuum cleaner. For general cleaning and dusting, the seats should be removed. In so doing, dirt along the sides and rear of the seats falls to the bottom and can easily be wiped off. If beaten, the cushion should be held upside down, so that the dust will fall away from it. Blows should be light.

Washing Mohair velvet is the only automobile upholstery that can be completely washed safely with soap and water. Use lukewarm water and a neutral soap. The suds should be good and frothy, not watery, and applied in moderate quantities with a damp cloth, sponge, or soft brush. Rub with the pile, not against it. Soapsuds should be removed with a clean, damp cloth or sponge. Then wipe the surface several times with a dry cloth. While the material is still damp, brush it lightly with a whisk broom or brush of medium stiffness. Permit air to circulate freely over the wet upholstery. When it is dry, brush again, against the pile.

Steaming The surface of mohair velvet can readily be freshened by steaming. Spread a damp cloth over the surface and touch a hot flatiron to it lightly. The steam that is thereby driven down in the fibres will restore them to the erect position. Another method is to apply a steaming hot towel or cloth to the surface of the upholstery. Leave the towel or cloth in place for ten minutes or so. It may be necessary to repeat the process a few times. While still damp, the upholstery should be brushed lightly with a whisk broom or brush of medium stiffness. When thoroughly dry, the material should again be brushed. Brush against the pile. After this treatment, the upholstery will look fresh and new.

REMOVAL OF STAINS

It is essential that stains be removed from upholstery as soon as possible after they have been made. If they are allowed to remain on the fabric for some time, they often become oxidized, and removal is difficult, if not impossible.

1. Use clean cloths at all times, and be sure a clean portion of the cloth is used throughout any operation.
2. A neutral (non-alkaline) soap is recommended in cases calling for soapsuds.
3. The use of hot water is to be avoided in removing stains, except where absolutely necessary. If it must be used, extreme care should be exercised, and it should be wiped off immediately, before it has a chance to run.
4. Do not use as a cleaning solvent any gasoline which is colored or which contains tetraethyl lead.

5. Do not use bleaches or reducing agents, such as the following, inasmuch as their use tends to weaken the fabric and change or bleach the color of the goods:

Chloride of lime	Potassium permanganate
Javelle water	Chlorine or chlorine water
Hydrogen peroxide	Sulphurous acid (sulphur dioxide)
Sodium hydrosulphite	Sodium thiosulphate (photographers' hypo)

6. Carbon tetrachloride is non-inflammable. Most other types of cleaning solvents are inflammable, and care must be exercised in handling them.
7. Do not permit cleaning solvents to come in contact with the skin on the upper arms or the body. Such contacts sometimes produce local irritation, which is unpleasant, if not serious.
8. Do not breathe the fumes of cleaning solvents, since they are usually poisonous in large quantities.
9. Keep oxalic acid out of reach of children and away from the mouth. It is a deadly poison.
10. Water spots may form on the fabric, if water has been used in the removal of the stain. These can be removed as outlined under "Water Spots."
11. All brushing of mohair velvets should be against the pile or lengthwise of the goods.
12. In removing grease spots, start just outside the spot and rub towards it with a circular motion. This will lessen the possibility of cleaning rings.
13. The direct application of cleaning materials or other reagents to the fabric should, wherever possible, be avoided. Better success will be experienced by first applying the reagent to a clean cloth or brush which is used for removing the spot from the area in question.

Blood Rub the stain with a clean cloth wet with cold water until no more of the stain will come out. Care must be taken so that clean portions of cloth are being used for rubbing the stain.

This treatment should remove all of the stain. If not, then

apply a little household ammonia water to the stain, by means of a cloth or brush. After a lapse of about one minute, continue to rub the stain with a clean wet cloth. Nothing further can be done to remove the stain if this treatment has not been effective.

Hot water or soap and water must not be used on blood stains, as their use will set the stain, thereby making its removal practically impossible.

Candy Candy stains other than chocolate can be removed by rubbing with a cloth wet with very hot water. If not then completely removed, sponging the stain (after drying) with a cloth wet with carbon tetrachloride will usually remove it.

Candy stains resulting from cream- and fruit-filled chocolates can be removed better by rubbing with a cloth soaked in lukewarm soapsuds, together with scraping, while wet, with a dull knife. This treatment is subsequently followed with a rinsing by rubbing the spot with a cloth wet with cold water.

Stains resulting from chocolate can be removed better by rubbing the stain with a cloth wet with lukewarm water. After the spot is dry, sponge with a cloth wet with carbon tetrachloride.

Chewing Gum Moisten the gum with carbon tetrachloride and work the gum off the fabric with a dull knife, while still moist.

Fruits Fruit stains of practically all kinds can be removed by treatment with very hot water. Wet the stain well by applying a little hot water (boiling if possible) to the spot. Scrape all pulp, if any, off the fabric with a dull knife. Then rub vigorously with a cloth wet with very hot water. If this treatment does not suffice, sponging after drying with a clean rag wet with carbon tetrachloride is the only further treatment recommended.

Soap and water are not recommended, as they will more than likely set the stain and thereby cause a permanent discoloration of greater magnitude than the original stain. Drying the cloth by means of heat (such as by the use of an iron) is also not recommended for the same reason.

Grease and Oil If a considerable quantity of grease has been spilled on the material, as much as possible should be removed by scraping with a dull knife or spatula before any further treatment is attempted.

Grease and oil stains may be removed by sponging and rubbing with a clean cloth wet with any one of several solvents, such as carbon tetrachloride, benzene, ether, or motor gasoline (free from tetraethyl lead). In general, carbon tetrachloride is the best grease remover. To lessen the possibility of grease rings, start just outside the spot and rub toward it with a circular motion. Care should be taken to use a clean portion of cloth to rub the stain. Several cloths may be necessary.

If, after repeated treatments with the solvent, a dirty stain remains, due to particles of dirt contained in the grease, rub the spot with a clean rag saturated with lukewarm suds, then rinse off the soap by sponging with a clean cloth wet with cold water.

Ice Cream The same procedure is recommended for the removal of ice cream stains as for removing fruit stains.

If the stain is persistent, rubbing the spot with a cloth wet with warm soapsuds may be used to some advantage after the initial treatment with hot water. This soap treatment should be followed by a rinsing, by rubbing with a clean cloth wet with cold water. After drying, a sponging with carbon tetrachloride will clear up the last traces of the stain, by removing fatty or oily matter.

Ink (Writing) The composition of writing inks varies; therefore, it is impossible to find agents which are equally effective in removing all ink spots. In general, no ink spot can be completely removed from velvets and flat fabrics without injuring the goods. The following methods are recommended and are listed according to their relative efficiency:

1. Gartside's Iron Rust Soap, manufactured by the Gartside's Iron Rust Soap Company, Philadelphia, and on sale throughout the United States.

Rub the soap into the stain with the fingers. Let stand about a minute and wipe off with dry cloth. Repeat the process until the wiping cloth no longer shows a stain. Then rinse by rubbing spot with cloth wet with cold water.

2. Ink Eradicator No. 1 Solution (Solution No. 2 cannot be used, since it changes the color of fabrics), sold at most drug stores. Apply No. 1 Solution to the spot with glass dropper and then

blot with blotting paper. Repeat process until a clean portion of blotting paper shows no stain. Then rinse by rubbing with clean cloth wet with cold water.

3. Saturated solution of oxalic acid. Use as outlined in 2.
4. Two per cent solution of sodium acid fluoride (sodium bifluoride). Use same as 2.

Iron Rust Rub the spot with a clean cloth saturated with warm soapsuds; rinse by rubbing with a cloth wet with cold water. After the fabric has dried, treat the remaining stain as if it were an ink spot, using methods outlined for the removal of ink spots.

Lipstick Apply a little carbon tetrachloride to the stain by means of a saturated cloth and immediately press a blotter firmly on the spot. Repeat this procedure, using new sections of blotting paper until the blotter no longer shows stain.

Liquor Treat liquor and wine stains exactly the same as fruit stains.

Mildew Fresh mildew stains can be removed by rubbing vigorously with a cloth soaked in warm soapsuds, followed with rinsing by rubbing with a cloth wet with cold water.

Old mildew growths can also be removed with the above soap and water treatment, but the discoloration caused by the growth probably cannot be removed. The only treatment recommended for removing discoloration caused by old mildew growths is an oxalic acid treatment. Pour enough 10 per cent oxalic acid solution on cloth to completely cover stain. Allow to stand a minute. Then remove acid by alternate blotting with dry blotting paper and pouring cold or hot water on stain.

Shoe Polish Allow the polish to become dry. Then brush the spot vigorously with a brush. This will probably be all the treatment that is necessary. If not, then moisten the spot with cold water, and after it has again dried, repeat the brushing operation.

This method applies particularly to types of white shoe dressings which contain only starch or dextrine or some water-soluble material. In cases where water-insoluble materials are used in

white shoe dressings, the methods of treatment will vary. If the vehicle is wax, as in the case of black and tan dressings, rub the stain with a cloth wet with carbon tetrachloride until removed. Use a clean portion of the cloth for each rubbing operation.

Tar Moisten the spot slightly with carbon tetrachloride, benzene, or gasoline (not ethyl) and then remove as much of the tar as possible with a dull knife. Follow this operation by rubbing the spot with a cloth wet with any one of the aforementioned solvents until it is removed.

Urine Sponge the stain with a clean cloth wet with lukewarm soapsuds and then rinse well by rubbing the stain with a clean cloth wet with cold water. Then apply to the spot, using a saturated cloth, a mixture composed of one part household ammonia water and five parts water. Allow to remain for a minute. Then rinse by rubbing with clean wet cloth.

Water Spots Sponge the entire panel showing the stain with a clean cloth wet with cold water. Allow to dry and sponge the spot with a cloth wet with carbon tetrachloride.

GENERAL LUBRICATION

Your Chevrolet dealer is equipped to render complete Chevrolet Specialized Lubrication Service. We recommend that you take advantage of his modern equipment and trained men.

Lubricants are much cheaper than repair bills, and should be applied regularly if you are to obtain a maximum of useful service from your car. It is, consequently, important that the proper grade of lubricants be used in accord with a definite schedule.

ENGINE LUBRICATION

Proper selection of the oil to be used will add much to the performance, reliability, economy and long life of your engine.

It is imperative that the recommended light oils be used in the engine during the "breaking-in" period.

Light oils assure a better "breaking-in" of the engine, as they assure ease of starting the engine, prompt flow of a sufficient quantity of oil to the bearings, less friction between moving parts, less wear of moving parts, etc.

Oil Gauge When starting a cold engine, it will be noted that the oil gauge on the instrument panel will register a high oil pressure. As the engine warms up, the pressure will drop until it reaches a point where changes to higher speeds will raise the pressure very little, if at all.

If the oil pressure registers abnormally high after the engine is thoroughly warmed up, an inspection should be made to ascertain if the oil lines and passages are plugged up.

Lubrication—First 500 Miles The crankcase of the engine, as delivered to you, is filled with S.A.E. 10-W oil.

Use this oil during the first 500 miles.

At the end of the first 500 miles, drain the crankcase—when hot—and refill to the proper level with the recommended oil.

Lubrication—After 500 Miles After the first 500 miles the crankcase oil should be selected to give the best performance under your individual climatic and driving conditions.

Fall—Winter—Spring During the colder months of the year, an oil which will permit easy starting at the lowest atmospheric temperature likely to be encountered should be used. When the crankcase is drained and refilled, the crankcase oil should be selected not on the basis of the existing temperature at the time of the change, but on the lowest temperature anticipated for the period during which the oil is to be used.

Unless the crankcase oil is selected on the basis of viscosity or fluidity at the anticipated temperature, difficulty in starting will be experienced at each sudden drop in temperature.

The viscosity grade of crankcase oil will, therefore, depend upon the climatic conditions under which your car is operated. The grades best suited for use in your engine at the various temperatures are shown in the following tables:

If you anticipate that the lowest atmospheric temperature will be	use the grade indicated
Not lower than 32° F.	20-W or S.A.E. 20
As low as plus 10° F.	20-W
As low as minus 10° F.	10-W
Below minus 10° F.	10-W plus 10% Kerosene

10-W oil plus 10% kerosene is recommended only for those territories where the temperature falls below 10 degrees below zero for protracted periods.

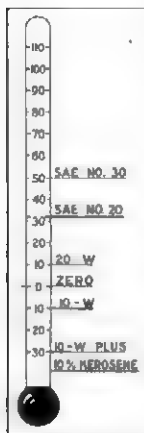


Fig. 41—Thermometer Indicating Lowest Easy Starting Temperature

Fig. 41 shows the data in the above table as it would appear on a thermometer—the lowest temperature at which the indicated grades of oil will permit easy starting.

Note. When in doubt, use the lighter grade of oil.

We recommend the use of 20-W rather than S.A.E. 20 if you anticipate temperatures to drop to freezing.

Summer The use of 20-W or S.A.E. 20 oils during the summer months will permit better all-around performance than will the heavier body oils, with no appreciable increase in oil consumption.

If S.A.E. 20 or 20-W oil is not available, S.A.E. 30 oil may be used if it is expected that the average prevailing daylight temperature will consistently be above 90° F.

Maintaining Oil Level The Oil Gauge Rod (Fig. 42) is marked "Full" or "Add Oil." These notations have broad arrows pointing to the level lines.

The oil level should be maintained between these two lines; neither going over the "Full" line nor under the "Add Oil" line.

Check the oil level frequently and add oil when necessary. Always be sure the crankcase is full before starting on a long drive.

When to Change Crankcase Oil Some oils have been greatly improved, driving conditions have changed, and



Fig. 42—Oil Gauge Rod in Pan

improvements in engines, such as the crankcase ventilating system, have greatly lengthened the life of good lubricating oils. However, to insure continuation of best performance, low maintenance cost and long engine life, it is necessary to change the crankcase oil whenever it becomes contaminated with harmful foreign materials. Under normal driving conditions draining the crankcase and replacing with fresh oil every 2000 to 3000 miles is recommended. Under the adverse driving conditions described in the following paragraphs, it may become necessary to drain the crankcase oil more frequently.

Driving over dusty roads or through dust storms introduces abrasive material into the engine. Carburetor air cleaners decrease the amount of dust that enters the crankcase. The frequency of draining depends upon severity of dust conditions and no definite draining periods can be recommended.

Short runs in cold weather, such as city driving, do not permit thorough warming up of the engine and water may accumulate in the crankcase from condensation of moisture produced by the burning of the fuel. Water in the crankcase may freeze and interfere with proper oil circulation. It also promotes rusting and may cause clogging of oil screens and passages. Under normal driving conditions this water is removed by the crankcase ventilator. But if water accumulates it should be removed by draining the crankcase as frequently as may be required.

It is always advisable to let the engine reach normal operating temperature before draining the crankcase. The benefit of draining is, to a large extent, lost if the crankcase is drained when the engine is cold as some of the suspended foreign material will cling to the sides of the oil pan and will not drain out readily with the slow-moving oil.

Crankcase Dilution Probably the most serious phase of engine oil deterioration is that of crankcase dilution, which is the thinning of the oil by fuel vapors leaking by the pistons and rings and mixing with the oil.

Leakage of fuel, or fuel vapors, into the oil pan mostly occurs during the warming-up period, when the fuel is not thoroughly vaporized and burned.

Automatic Control Devices to Minimize Crankcase Dilution

Your Chevrolet engine is equipped with automatic devices

which aid greatly in minimizing the danger of crankcase dilution.

Rapid warming up of the engine is aided by the thermostatic water temperature control, which automatically prevents circulation of the water in the cooling system until it reaches a predetermined temperature.

Thermostatic heat control on the exhaust manifold, during the warming-up period, automatically directs the hot exhaust gases against the center of the intake manifold, greatly aiding the proper vaporization of the fuel.

The downdraft carburetor is an aid to easy starting, thereby minimizing the use of the choke. Sparing use of the choke reduces danger of raw, or unvaporized, fuel entering the combustion chamber and leaking into the oil reservoir.

An efficient crankcase ventilating system drives off fuel vapors and aids in the evaporation of the raw fuel and water which may find its way into the oil reservoir.

Control by Car Owner Under Abnormal Conditions

Ordinarily these automatic control devices will minimize, or eliminate, the danger of crankcase dilution.

However, there are abnormal conditions of service when the car owner must aid in the control of crankcase dilution.

Short runs in cold weather, such as city driving, do not permit the thorough warming up of the engine or the efficient operation of automatic control devices. It is recommended that the oil be changed more often when the car is subject to this type of operation.

Poor mechanical condition of the engine, such as scored cylinders, poor ring fit, "sloppy" or loose pistons, faulty valves and poor ignition will increase crankcase dilution. Keep your car in good mechanical condition.

Poor fuels which contain portions hard to ignite and slow to burn will increase crankcase dilution. Use good fuel.

Water in Crankcase Serious lubrication troubles may result in cold weather by an accumulation of water in the oil pan. This condition is as a rule little understood by the car owner. To demonstrate the chief cause of water in the oil pan, hold a piece of cold metal near the end of the exhaust

pipe of the engine and note the rapid condensation and collection of drops of water on it. The exhaust gases are charged with water vapor and the moment these gases strike a cold surface, they will condense, forming drops of water.

A slight amount of these gases pass the pistons and rings, even under the most favorable conditions, and cause the formation of water in the oil pan, in a greater or less degree, until the engine becomes warm. When the engine becomes thoroughly warm, the crankcase will no longer act as a condenser and all of these gases will pass out through the crankcase ventilator system.

Short runs in cold weather, such as city driving, will aggravate this condition.

Corrosion Practically all present-day engine fuel contains a small amount of sulphur which, in the state in which it is found, is harmless; but this sulphur, on burning, forms certain gases, a small portion of which is likely to leak past the pistons and rings and, reacting with water, when present in the crankcase, form corrosive acids. The more sulphur in the fuel, the greater the danger from this type of corrosion. This is a condition which we cannot wholly avoid, but it may be reduced to a minimum by proper care of the engine.

As long as the gases and the internal walls of the crankcase are hot enough to keep water vapor from condensing, no harm will result; but when an engine is run in low temperatures, moisture will collect and unite with the gases formed by combustion; thus, acid will be formed and is likely to cause serious etching or pitting. This etching, pitting or corrosion, when using fuel containing considerable sulphur, manifests itself in excessively rapid wear on piston pins, camshaft bearings and other moving parts of the engine, oftentimes causing the owner to blame the car manufacturer or the lubricating oil when in reality the trouble may be traced to the character of fuel used, or a condition of the engine, such as excessive blow-bys or improper carburetor adjustment.

S. A. E. Viscosity Numbers The viscosity of a lubricant is simply a measure of its body or fluidity. The oils with the lower S.A.E. numbers are lighter and flow more readily than do the oils with the higher numbers.

The S.A.E. viscosity numbers constitute a classification of lubricants in terms of viscosity or fluidity, but with no reference to any other characteristics or properties.

The refiner or marketer supplying the oil is responsible for the quality of its product. His reputation is your best indication of quality.

The S.A.E. viscosity numbers have been adopted by practically all oil companies, and no difficulty should be experienced in obtaining the proper grade of lubricant to meet seasonal requirements.

Crankcase Oil Classifications

Viscosity Number	Seconds Viscosity 0° F.		(Saybolt Universal) 130° F.	
	Min.	Max.	Min.	Max.
10-W (*)	5,000	10,000	...	...
20-W (**)	10,000	40,000	...	...
S.A.E. 20	.....	.....	120	185
S.A.E. 30	.....	.....	185	255

*Sub-zero pour test.

**Zero pour test.

WATER PUMP

The permanently sealed ball-bearing water pump does not require lubrication by the car owner.

CARBURETOR ACCELERATING PUMP

Every 5,000 miles remove the carburetor dust cover and saturate the felt ring on the pump lever shaft with light oil or engine oil.

STARTING MOTOR

Every 1,000 miles put a few drops of light oil, or engine oil, in the oil cup.

GENERATOR

Every 1,000 miles put a few drops of a light oil, or engine oil, in the 2 oil cups.

DISTRIBUTOR

The distributor is equipped with a lubricant cup. Fill this cup with chassis lubricant or equivalent, soft, smooth lubricant and turn down every 1,000 miles.

REAR AXLE AND TRANSMISSION

The Passenger Car Hypoid Rear Axle operates under the most severe lubrication conditions at high speeds and requires a Passenger Car Duty Hypoid Lubricant which will meet this condition.

The Rear Axle and Transmission of your car, as you receive it, is filled with the "Year-Around" lubricant indicated below:

Hypoid Rear Axle—S.A.E. 90 Passenger Car Duty Hypoid Lubricant.

Transmission—S.A.E. 90 Transmission or Mineral Oil Lubricant.

Recommended Lubricants

Rear Axle S.A.E. 90 Passenger Car Duty Hypoid Lubricants.
—S.A.E. 90 "All Purpose" or "Universal" Gear Lubricants.*

Transmission S.A.E. 90 Transmission or Mineral Oil Lubricants.
—S.A.E. 90 "All Purpose" or "Universal" Gear Lubricants.*

(CAUTION: Mineral Oil Lubricants must not be used in Hypoid Rear Axles.)

The S.A.E. 90 grades of lubricants are recommended for "year-around" service.

However, when extremely low temperatures are encountered for protracted periods during the winter months, the S.A.E. 80 grades may be used.

***"All Purpose" or "Universal" Gear Lubricants** Due to the increase in the number of car and truck manufacturers using Hypoid

Rear Axles, "All Purpose" or "Universal" gear lubricants have been developed.

These lubricants can be used satisfactorily in passenger car and truck rear axles, transmissions, steering gears, and universal joints requiring a fluid lubricant.

"All Purpose" or "Universal" Gear lubricants must be manufactured under carefully controlled conditions and the lubricant manufacturer must be responsible for the satisfactory performance of his product.

His reputation is your best indication of quality.

Lubricant Additions The lubricant level in the housing should be checked periodically.

It is recommended that any additions, required to bring up the lubricant level, be made using the same type of lubricant as in the housing.

Lubricant Changes While seasonal changes of the lubricant are not required, it is recommended that you have the housing drained and refilled with the recommended lubricant at least twice a year, or every 6,000 to 10,000 miles.

CAUTION: Use a light flushing oil to flush out the housings when draining. Do not use water, steam, kerosene, gasoline, alcohol, etc.

UNIVERSAL JOINT

The universal joint receives its lubrication from the transmission.

STEERING GEAR

The steering gear is filled at the factory with an all-season gear lubricant. Seasonal change of this lubricant is unnecessary and the housing need not be drained. Whenever required, additions should be made using steering gear lubricants marked by some oil companies, "All Purpose" or "Universal" gear lubricants or chassis lubricants.

A pipe plug is installed at this point to prevent over-lubrication, generally occasioned by the use of a pressure gun.

Over-lubrication of this unit might result in forcing lubricant up the steering gear tube to the horn button and steering wheel.

BRAKE AND CLUTCH PEDAL

The pedals, lubricated at the factory, should not require further lubrication. However, should the pedals operate "stickily," remove the plug and fill the reservoir with chassis lubricant.

CAUTION: Be very careful not to get any lubricant on the nearby rubber parts.

1941 PASSENGER CAR LUBRICATION POINTS

1. Lower Control Arm—Front (2 each side)
Chassis Lubricant 1,000 miles
2. Lower Control Arm—Rear (1 each side)—
Chassis Lubricant 1,000 miles
3. Upper Control Arm—Front (1 each side)—
Chassis Lubricant 1,000 miles
4. Upper Control Arm—Rear (1 each side)—
Chassis Lubricant 1,000 miles
5. Front Wheel Bearings—High Melting Point
Front Wheel Bearing Lubricant 10,000 miles
6. King Pin (2 each side)—Chassis Lubricant 1,000 miles
7. Shock Absorber—Front—Genuine Shock
Insulating Fluid 5,000 miles
8. Tie Rod (2 each side)—Chassis Lubricant 1,000 miles
9. Steering Gear (see page 49) 1,000 miles
10. Air Cleaner (see page 20) 2,000 miles
11. Transmission (see page 48)
12. Shock Absorber—Rear—Genuine Shock
Insulating Fluid 5,000 miles
13. Rear Axle (see page 48)
14. Rear Spring Shackle—Rear (2 each side)—
Chassis Lubricant 1,000 miles
15. Generator (2 oil cups) Light Engine Oil 1,000 miles
16. Distributor (1 cup)—Chassis Lubricant 1,000 miles
17. Starting Motor (1 oil cup)—Light Engine Oil 1,000 miles
18. Clutch and Brake Pedal Shaft (see page 49)
19. Vacuum Shift Cylinder (see page 53)
20. Throttle Bell Crank—Light Engine Oil 1,000 miles
21. Carburetor Accelerating Pump Shaft Light
Engine Oil 5,000 miles

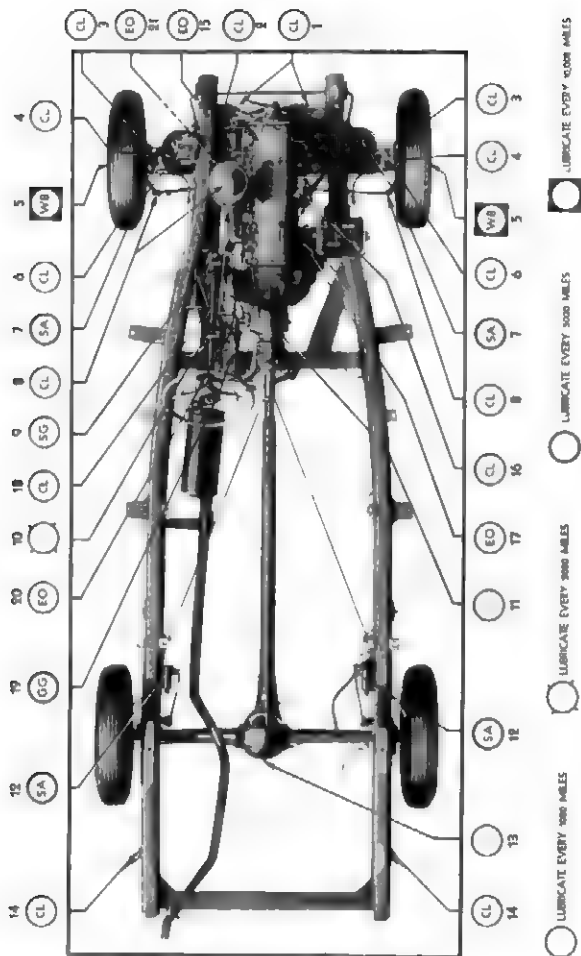


Fig. 43—Chassis Lubrication Chart

FRONT WHEEL BEARINGS

It is necessary to remove the front wheels to lubricate the ball bearings. The bearing assemblies should be cleaned, and packed with a high melting point front wheel bearing lubricant. Do not pack the hub between the inner and outer bearing assemblies, or the hub cap, as this excessive lubrication results in the lubricant working out into the brake drum and linings.

In mounting the front wheels, great care must be taken to properly adjust the bearings, an operation that requires mechanical skill, as follows:

1. Using an 8" wrench (never larger) and applying a steady force with one hand, pull up the adjusting nut as tightly as possible. At the same time rotate the wheel to be sure that all parts are correctly seated.
2. Back off the adjusting nut one-half castellation or one-twelfth turn.
3. If the slot in the nut and the cotter pin hole line up, insert the cotter pin. If not, back the nut off until the slot and the hole are in line and then insert the cotter pin.

With the bearing inner cup an easy-push fit on the spindle and the nut a free-running fit on the spindle threads, this will give an adjustment toward the tight side, which will allow for settling and working-in of the parts in service.

Front wheel bearings should never be set up on the loose side, as such an adjustment does not bring the balls and races into proper contact.

It is well to note that the slight friction of a new snugly fitting felt retainer assembly will temporarily produce a slight drag on the wheel, but this is easily recognized and need not be confused with adjustment of the bearing. Spin the wheel, making sure that all parts are in correct position, then clinch cotter pin securely.

REAR WHEEL BEARINGS

The rear wheel bearings are lubricated from the rear axle.

SPRING SHACKLES

The spring shackles are equipped with pressure gun fittings, and should be lubricated with the lubricant recommended under "Chassis Lubrication," below.

CAUTION *Rubber bushings are used at the front of each rear spring, and on the spring seats. These bushings must not be lubricated or sprayed with oil.*

SHOCK ABSORBERS

The shock absorbers should be kept filled with a low viscosity (light body) shock absorber fluid that has a pour test not higher than 30° below zero. The same fluid is used both summer and winter.

The shock absorber fluid should have a viscosity of from 70 to 80 seconds at 100° F. (Sayboldt Universal) and should not exceed 975 to 1,000 seconds at 20° F. This type of fluid is carried by all Chevrolet dealers.

Do not, under any circumstances, use a shock absorber fluid heavier in viscosity, or body, than that recommended above. Heavy fluids are detrimental to the proper functioning of the unit.

CHASSIS

For chassis lubrication, consult the lubrication chart, Fig. 43, which shows the points to be lubricated and how often the lubricant should be applied.

The term "chassis lubricant," as used in this manual, describes a semi-fluid lubricant designed for application by commercial pressure gun equipment. It is composed of mineral oil (usually 300 to 500 seconds Sayboldt Universal Viscosity at 100°F.) combined with approximately 8% soap, or soaps, which are insoluble in water.

HYDRAULIC BRAKE FLUID

Your Chevrolet dealer has the proper hydraulic brake fluid for the brake system of your car.

VACUUM POWER GEARSHIFT MECHANISM

This mechanism, lubricated at the factory, is well protected and should not require further lubrication under 15,000 miles.

However, should the shifting become "sticky" the protecting boot should be inspected for leaks, at which time the levers should be lubricated with a graphite lubricant or chassis lubricant and the boot properly assembled.

REAR SPRINGS

The rear springs are enclosed in metal covers. The spring leaves are coated and the covers are filled with a special graphite lubricant at the time the springs are assembled.

Should the car owner find it necessary to lubricate the spring leaves, or refill the spring covers, a soft, smooth lubricant, to which 8% to 10% graphite has been added, or chassis lubricant may be used.

SAFETY BUILT IN YOUR CAR

Your Chevrolet has been designed and built to give you many thousands of miles of driving pleasure and comfort.

The body is of all-steel construction, well insulated against heat and sound. The interior appointments have been made to assure comfort and safety. The adjustable front seat, safety glass, controlled ventilation, and recessed control knobs on the instrument panel are examples of this safety in design.

The headlights are controlled by the left foot when changing from the upper to the lower beam, which leaves the right foot and both hands free to control the car. Always use the low beam when approaching and passing another car.

The hydraulic brakes are the safest and most dependable system of brakes ever used. They always exert equal brake pressure on all four wheels.

The hand brake lever, under the instrument panel to the left of the steering wheel, is easily reached.

HIGHWAY SAFETY

One of the most important aspects of motoring these days is motoring safety. Safety campaigns are constantly being held in the major cities. Many states now have compulsory inspec-

tion laws. Various commissions have been appointed to study the problem and make further recommendations to legislative bodies.

The primary responsibility for traffic safety lies with the motor car driver.

The most competent driver always keeps in mind the other fellow. Always signal the other driver to let him know when you are going to stop, make a turn, or pull away from the curb. Proper signaling will do away with one of the most dangerous traffic hazards—the sudden, unexpected move.

The State Highway Departments, Automobile Clubs, and car-manufacturers work together in designating highways through various types of road markers to make driving safer.

You, the driver, should always obey these markers. Extra care should be used at night particularly when driving over strange roads. Be constantly alert and drive courteously.

Downhill When driving down a steep grade, it is advisable to shift into second gear and sometimes into first gear. This will allow the motor to act as a brake on the car and will not only assist materially in keeping the car under control, but also reduce the wear on brake shoe facings and brake drums.

Uphill When driving up a steep grade, it is advisable to shift into second gear. This will avoid placing undue strain on the motor and clutch and is also more economical on the gasoline.

Overtaking or passing a car on a hill or curve is dangerous as you cannot see another car approaching.

Starting on a Hill When it is necessary to start your car on a hill, you will find it much easier if, before starting, you set the hand brake lever to keep the car from rolling backward. Put the shifting lever in first speed, gradually release the clutch, press down the accelerator, and when the car starts to move forward, or the engine starts to labor, slowly release the hand brake lever.

Curves When approaching a curve, do not cross over the center of the road to pass a car ahead of you. Before entering a curve, slow down to a safe speed and make the turn into the curve at the extreme right side.

Slippery Roads When starting on ice or slippery pavement, it is safer to have the shifting lever in either second or high gear to reduce the tendency of the rear wheels to spin. In starting in deep snow, always use first speed and accelerate the engine slowly.

Tire Blow-Out Do not jam on the brakes. Hold the car as steady as possible until it slows down to a moderate speed and then gradually apply the brakes.

Skidding If your car starts to skid, do not jam on the brakes. Turn the front wheels in the direction of the skid and at the same time take your foot off the accelerator gradually.

Sand and Gravel When approaching a sandy or gravel road, always use extra caution until you know the condition of the road. Driving into loose sand or gravel at a fast speed is dangerous, as a sudden shifting of the gravel may cause you to lose control of the steering.

We suggest that whenever and wherever you drive, you do so with the car completely under control, at all times, and practice the three "C's" of safety—

CARE

COURTESY

COMMON SENSE

DATA

Car Serial Number:

Stamped on plate on right front side of body under hood.

Engine Number:

Stamped on boss on right center side of engine block to the right of ignition distributor.

Wheelbase 116"

Tire Sizes 6.00 x 16"

Tire Pressures $\begin{cases} 26 \text{ lbs. Front} \\ 28 \text{ lbs. Rear} \end{cases}$

Engine:

Number of cylinders 6

Bore $3\frac{1}{2}"$

Stroke $3\frac{3}{4}"$

Horsepower (A.M.A.) 29.4

Piston Displacement 216.5 Cu. In.

Engine Adjustments:

Spark Plug Type AC 104

Spark Plug Gap040"

Breaker Point Gap018"

Initial Ignition Setting:

Distributor points should break when steel ball on flywheel is opposite pointer on flywheel housing.

Octane Selector:

The octane selector should be set for the grade of fuel being used to produce a slight "ping" at acceleration.

Carburetor Idle Adjustment 1 to 2 turns open

Intake Valve Clearance006" to .008"—hot

Exhaust Valve Clearance013" to .015" hot

Air Cleaner: Remove at least once every 2,000 miles and thoroughly wash out filter element in gasoline and dip in fresh engine oil. This should be done more frequently when operation is over dusty roads.

Unit Capacities:

Crankcase—Oil Capacity—Re-fill 5 qts.

Transmission—Lubricant Capacity $1\frac{1}{2}$ pts.

Rear Axle Hypoid Lubricant Capacity $3\frac{1}{2}$ pts.

Cooling System Fluid Capacity (2 drain cocks) 14 qts.

Gasoline Tank Capacity 16 gals.

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